

[0028] What is claimed is:

1. A track assembly (20) for providing selective forward and rearward adjustment of a seat assembly (10) along a floor of an automotive vehicle, the track assembly (20) comprising:
  - a lower track (22) adapted to be secured to the floor of the vehicle;
  - an upper track (24) adapted to be secured to the seat assembly (10), the upper track (24) slidably coupled with the lower track (22);
  - a rigid shaft (32) having a helical thread (38) formed thereon, the rigid shaft (32) rotatably supported by the upper track (24);
  - at least one nut (40) engaged with the helical thread (38) of the rigid shaft (32), the at least one nut (40) having raised bumps (66) disposed on opposing lateral sides (64) thereof;
  - and
  - a cage (42) secured to the lower track (22), the cage (42) having at least one compartment (58) for supporting the at least one nut (40) therein, the cage (42) allowing relative rotational movement of the rigid shaft (32) relative to the at least one nut (40) for displacing the upper track (24) relative to the lower track (22), the at least one compartment (58) interacting with the raised bumps (66) of the at least one nut (40) thereby allowing a predetermined amount of movement of the at least one nut (40) within the at least one compartment (58) for preventing binding between the rigid shaft (32) and the at least one nut (40) due to loading of the upper track (24) relative to the lower track (22).
2. The track assembly (20) of Claim 1 wherein the at least one nut (40) comprises a plurality of nuts (40).

3. The track assembly (20) of Claim 1 wherein the cage (42) includes a hole (52) formed in a top surface (44) of the cage (42) defining a receptacle (54) for receiving the at least one nut (40).
4. The track assembly (20) of Claim 3 wherein the receptacle (54) includes a plurality of walls (56) spaced from each other defining the at least one compartment (58).
5. The track assembly (20) of Claim 1 further including a bore (60) formed in end walls (48, 50) and the plurality of spaced walls (56) of the cage (42) for allowing the rigid shaft (32) to extend therethrough.
6. The track assembly (20) of Claim 1 further including a flexible shaft (70) connected to a transmission (74) for transferring rotational input into rotational movement of the flexible shaft (70).
7. The track assembly (20) of Claim 1 wherein a first end (72) of the flexible shaft (70) is connected to a first end (34) of the rigid shaft (32).
8. The track assembly (20) of Claim 1 further including a housing (90) secured to the upper track (24) for axially connecting the rigid shaft (32) and the flexible shaft (70).
9. The track assembly (20) of Claim 1 wherein the housing (90) includes a guide bore (92) formed between ends (91, 93) of the housing (90) for receiving the first ends (34, 72) of the rigid (32) and flexible (70) shafts.
10. The track assembly (20) of Claim 1 wherein the rigid and flexible shafts (32, 70) include a bead (95, 96) formed thereon proximate the first ends (34, 72) for aligning the rigid (32) and flexible (70) shafts to maintain engagement during rotation.

11. The track assembly (20) of Claim 1 wherein the housing (90) includes an abutment wall (97) formed within the guide bore (92) between the ends (91, 93) of the housing (90).
12. The track assembly (20) of Claim 1 including a retaining pin (98) extending through the rigid shaft (32) in a position between the abutment wall (97) and the first end (34) of the rigid shaft (32) for maintaining the rigid shaft (32) within the guide bore (92).
13. The track assembly (20) of Claim 1 including a spring washer (100) mounted about the rigid shaft (32) between the abutment wall (97) and the retaining pin (98) for providing an axial preload between the at least one nut (40) and the helical thread (38) of the rigid shaft (32).
14. The track assembly (20) of Claim 1 further including an elastic insulator (62) disposed between the cage (42) and at least one nut (40) for minimizing noise and vibration between the at least one nut (40) and cage (42).
15. A track assembly (20) for providing selective forward and rearward adjustment of a seat assembly (10) along a floor of an automotive vehicle, the track assembly (20) comprising:
  - a lower track (22) adapted to be secured to the floor of the vehicle;
  - an upper track (24) adapted to be secured to the seat assembly (10), the upper track (24) slidably coupled with the lower track (22);
  - a rigid shaft (32) having a helical thread (38) formed thereon, the rigid shaft (32) rotatably supported by the upper track (24);
  - a flexible shaft (70) connected to a transmission (74) at one end and to the rigid shaft (32) at another end;

at least one nut (40) engaged with the helical thread (38) of the rigid shaft (32), the at least one nut (40) having raised bumps (66) disposed on opposing lateral sides (64) thereof; and

a cage (42) secured to the lower track (22), the cage (42) having at least one compartment (58) for supporting the at least one nut (40) therein, the cage (42) allowing relative rotational movement of the rigid shaft (32) relative to the at least one nut (40) for displacing the upper track (24) relative to the lower track (22), the at least one compartment (58) interacting with the raised bumps (66) of the at least one nut (40) thereby allowing a predetermined amount of movement of the at least one nut (40) within the at least one compartment (58) for preventing binding between the rigid shaft (32) and the at least one nut (40) due to loading of the upper track (24) relative to the lower track (22).